Math-Finance: Econometrics I
Fall, 2015; Roger Klein
Hill Center, Rm. 705: 10:20-1:20
,

TEXT: W. Greene, Econometric Analysis, Note: The chapter numbering below refers to the 7th edition. However, earlier additions will be fine for this course. There is also a more recent edition that will also be fine. We will supplement this text with handouts and assigned published papers. The handouts and lecture notes will of primary importance.

GOALS AND ASSESSMENT: The purpose of this course is to provide the foundation for doing applied empirical work . Grades will be determined as follows:

Problem Sets	25%
Midterm Exam	35%
Final Exam	40%

Remark 1: **Problem Sets**.   The problem sets will directly count for 25% of your grade.   In making this calculation, the problem set with the l9west score will be discarded.   You are encouraged to work together on the assignments, but please provide your own write-up and be sure that you understand how to do the problems.   A large fraction (about 8-%) of each exam will include questions that are similar (though not identical) to those covered in problem sets and material emphasized in class.   Consequently, it is essential that you understand how to do these problems.   **You may and indeed are encouraged to ask questions before you turn in the problem sets. A key to doing well in this course is to ask questions both in and outside of class.**

Remark 2: Exams will be o0pen-book and open notes.

OFFICE HOURS: Mondays before class: 9:20-10:20 in 705 Hill Center and Fridays, 9-11 in 311 NJ Hall, CAC

Please contact me if you have questions and can not come during the regular office hours. I can be reached at:

Email: rogerwklein@gmail.com
Phone:(848) 932-7543

Since each topic depends on previously covered material, I strongly encourage you to ask questions in and outside of class as we go along; do not wait until just before exams. As stated above, I encourage you to ask any questions that you may have about problem sets before they are due. If it would be helpful and if we can get the room, I can hold additional office hours prior to class in 705 Hill. Center

Course Outline

The following outline gives the topics that we will cover and the approximate dates for each topic. This outline is tentative in that we may spend more or less time on some topics than is indicated below. There may be one or more additional lectures given outside of the regularly scheduled course times.

.

- **INTRODUCTION AND REVIEW: CONVERGENCE, CONDITIONING, & PROGRAMMING**: Sept. 8, 14

- **LINEAR REGRESSION:** Sept. 21, 28, Oct. 5

  - **Estimation:** Greene, Chapters 1-4

  - **Inference:** Handout; Greene, Chapter 5

  - **Dummy Variables:** Greene, Chapter 6 (Sections1-2)

- **THE ENDOGENEITY PROBLEM:** Oct. 12

  - **The Linear Case: 2SLS , IV, and Control Estimators.**
    * · Greene, Selected portions of Chapter 8; Handout

Review Session: To be Scheduled
Midterm Exam: October 19 (Beginning of Class)

- - **Optimal IV in More General Models:** Oct. 19, 26
    * · Newey, W.K., "Efficient Instrumental Variables Estimation of Nonlinear Models," *Econometrica*, July, 1990, v. 58, 809-837.

- **CENSORED REGRESSION & SAMPLE SELECTION:** Nov. 9.

    - * Handout; Greene, Chapter 18.3..

- **CATEGORICAL MODELS:** Nov. 16.

- - * · Handout

HETEROSCEDASTICITY: Nov. 23, Nov. 30, Dec. 7

- - **A Score Test for Heteroscedasticity**
    * · Breusch, T. and A. Pagan, "A Simple Test for Heteroscedasticity and Random Coefficients," *Econometrica,* 1979, 1287-1294.

  - **Correcting for Heteroscedasticity**
    * · Greene, Chapter 9; Handout

  - **A Semiparametric Model for Heteroscedasticity**
    * · Handout

- **PANEL DATA**: **AND TIME SERIES** Dec. 7,

  - ∗ Handout

FINAL REVIEW SESSION: TO BE SCHEDULED
FINAL EXAM; TO BE SCHEDULED